Caring for Saskatchewan's Natural Environments:

A Proposed Biodiversity Action Plan

October 2002

Government of Saskatchewan

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We Value Your Comments

The following proposed Action Plan has been developed to seek public response and includes the following proposals:

- a vision for biodiversity conservation in Saskatchewan;
- statement of principles;
- five goals primarily based on those in the Canadian Biodiversity Strategy; and
- 15 objectives and corresponding actions.

The Saskatchewan Biodiversity Interagency Steering Committee would like to receive your comments and suggestions. All comments received will be taken into consideration, leading to the development of the final Saskatchewan Biodiversity Action Plan. Comments are requested by December 31, 2002.

Your comments are important and can be provided by completing the enclosed questionnaire, or accessing the website at **http://www.se.gov.sk.ca/ecosystem** and downloading the questionnaire.

Requests for further information, questionnaires and other comments can be sent directly to:

Saskatchewan Biodiversity Interagency Steering Committee
c/o Saskatchewan Environment
Fish and Wildlife Branch
3211 Albert Street, Regina, Saskatchewan S4S 5W6

Email: lgallagher@serm.gov.sk.ca
Fax: (306) 787-9544

Executive Summary

Photo courtesy H. Wightman

Residents of Saskatchewan are the stewards of nationally and internationally significant biological and geographical diversity. Our diverse landscapes and watersheds of the southern prairies, parklands and northern forests support a rich and diverse flora and fauna ranging from the more familiar mammals, birds, fish, reptiles, amphibians and vascular plants to the less visible, but highly important invertebrates, non-vascular plants and microorganisms. Our landscapes encompass an extraordinary range of ecosystems, including native prairie grasslands, sand hills, wetlands, lakes, rivers, sparsely treed shield, bog, fens and boreal forests.

The Government of Saskatchewan is developing a Biodiversity Action Plan to conserve our province's biodiversity for present and future generations. The action plan is intended to guide government actions over a five year period, including fiscal years 2003/2004 through 2007/2008.

Based on both internal and public consultation, the province's Interagency Steering Committee has prepared a proposed action plan for consideration by the public.

The plan focuses primarily on government actions to improve policies and programs, planning and management systems and access to information to support biodiversity conservation and sustainable use of resources by all sectors. Central to these initiatives is for government and other sectors to adopt an ecosystem perspective. The environment, and biodiversity in particular, needs to be considered at all stages of decision making, along with social and economic considerations.

Specific proposed actions include:

- Expanding efforts to conserve ecosystems and species at risk as well as dealing with invasive exotic species.
- Improving management of wild species, including expanding involvement of Aboriginal peoples.
- Completing the designation of existing Representative Areas Network sites and undertaking management for ecological integrity of all protected lands - provincial parks, ecological reserves and Fish and Wildlife Habitat Lands.
- Supporting an ecosystem based approach to planning (land use planning, etc.) and Crown land and resource management.
- Participating in national biodiversity conservation initiatives including invasive exotic species, stewardship, science and information, and status and trend reporting.
- Supporting a feasibility study to approach environmental assessment at a more strategic/landscape level.
- All departments and crowns to review major corporate policy and legislation and incorporate an environmental component when developing strategic plans.
- Enhancing opportunities for staff learning and public education, both formal and informal.
- Assessing a variety of economic instruments that support biodiversity conservation.
- Assessing the opportunity for the province to encourage and support biodiversity conservation by urban and rural municipalities and First Nations.

As to the plan's economic implications, the proposed actions have been designed to minimize negative impact to individuals and industry. Some actions represent costs to government or individuals as lost opportunities, lost revenues or increased management costs. In some cases the impact of action is not in a cost or benefit, but a change in who benefits. In other cases there may be positive economic impacts from conservation activities.

There are economic benefits to be gained from acting now to conserve biological diversity. These include: maintaining future opportunities for resource use; the removal of uncertainty for industry and the provision of clear guidelines for biodiversity conservation within which investment decisions can be made; and reducing the cost of rehabilitating species and ecosystems. Several objectives are designed to increase accessibility to ecosystem based management tools and information, in a timely fashion. Long term sustainable resource use and access to resources will yield long term economic benefits.

Implementing the plan will largely be met within existing appropriations, but additional resources would be beneficial for achieving objectives for several key priority areas. The extent to which objectives are achieved will not only depend on the availability of additional resources at all levels of government, but also from the non-governmental sectors. Provincial decisions will need to be made within the context of overall provincial spending priorities in the years ahead.

The Planning Process

Responsibility for biodiversity lies with all sectors of society, with the Saskatchewan Government performing a key leadership role. In recognition of the scope of this task and the vastness of the issues, the Saskatchewan Biodiversity Interagency Steering Committee (ISC) was established in 1998 to oversee the development of the action plan.

The ISC has completed the following:

- A progress report on all initiatives undertaken by Saskatchewan in support of the Canadian Biodiversity Strategy since 1995 has been prepared. The progress report entitled "Caring for Saskatchewan's Biodiversity: A Progress Report on Government Related Initiatives Towards Implementing the Goals of the Canadian Biodiversity Strategy" was released by the Premier in February 1999 along with an announcement on the development of a Saskatchewan Biodiversity Action Plan.
- A framework discussion document "Caring for Saskatchewan's Natural Environment: Framework for a Saskatchewan Biodiversity Action Plan" was released for public discussion in the fall of 2000. Subsequently, the first round of a two phase public consultation was held consisting of public meetings and individual meetings with interest groups.
- A series of staff workshops were held with government departments and agencies to assist in identifying priority actions.
- A proposed Action Plan for public review and comment. Based on the comments received, a final action plan will be developed for consideration by Cabinet.

Why an Action Plan?

Now, as never before, human activities are having a significant impact on the fundamental ecological processes of the planet. Sustainable development requires that society be responsible to ensure that the needs of current generations are met, but not at the risk of compromising the ability of future generations to meet their needs. If we are to achieve a sustainable future in which food, shelter, health and other basic needs of a growing global population are met, we must act now to protect our environment and its resources.

Several features of biodiversity distinguish it from other environmental issues, hence why biodiversity warrants specific attention through an action plan. These features include:

- species and genetic biodiversity loss is irreversible;
- many species - especially within invertebrate, microbe and virus groups - have yet to be identified;
- ecosystems under stress often continue to function up to a threshold level and then collapse. These thresholds are unknown and the uncertainty makes appropriate management more complex;
- many biodiversity problems cannot be solved one activity at a time, an ecosystem approach is required;
- while some biodiversity has major economic value, much of it has no immediate economic value. Healthy ecosystems provides clean air, water, nutrients and other goods and services essential to life.
- the causes of genetic, species and ecosystem losses are extremely diffuse, and often involve many different sectors and forms of human activity.

The need for biodiversity conservation was formally recognized internationally in 1992 with the Convention on Biological Diversity. The convention is global in scope, covers the full range of biological diversity, and has as its primary aims the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the use of genetic resources. Canada was the first industrialized nation to ratify the United Nations Convention on Biodiversity.

Canada's response to the Convention on Biodiversity was the development of the Canadian Biodiversity Strategy in 1995. This national strategy, which had the agreement of all provinces and territories, set out long term goals and actions by which biodiversity conservation and sustainable use of biological resources could be achieved. Each jurisdiction was responsible to implement the strategy given its own priorities and resources.

Conservation of biodiversity means, ***"Managing human use of the Earth's resources in order to maintain ecosystem, species and genetic diversity and the evolutionary and other processes that shaped them. Conservation includes the option to use resources. Conservation of biodiversity allows natural ecological processes such as evolutionary processes including extinction and speciation and maintains biological, chemical, and physical processes and the natural species and genetic diversity that result from these processes. Changes to the composition and structure of ecosystems, the extinctions of species and changes in the genetic diversity of any one species are natural processes that occur over time. It is not the intent of conservation to increase biodiversity through the release of alien organisms. Conservation of biodiversity requires us to eliminate or reduce adverse impacts to biodiversity that result from human activity."*** (Canadian Biodiversity Strategy, 1995. p. 18)

Saskatchewan's Biodiversity Action Plan is intended to build on actions currently underway. Individuals, organizations, governments and the private sector are making numerous efforts to conserve, understand and manage parts of our biological diversity. Some of these efforts have been ongoing for many years. Saskatchewan is party to a large number of national and international agreements that are relevant to the conservation of biological diversity. These range from agreements about the protection of the habitats of migratory species and World Heritage Sites, biosphere reserves, protected areas, and climate change, to agreements on trade in wildlife and pollution control. Provincially, there are many initiatives underway for the conservation of biological diversity, among them: the establishment and management of a Representative Areas Network, financial assistance to a conservation cover program, legislation for the protection of species at risk, the establishment of the Saskatchewan Conservation Data Centre and the Prairie Conservation Action Plan.

Although current programs and activities all contribute to the conservation of biological diversity, by themselves they are not sufficient. Of fundamental importance to the successful conservation of biological diversity is incorporation of the concept in all relevant decision-making and management processes. Objectives for the conservation of biological diversity must be integrated into resource allocation and management, into development assessments and decisions, into inter-sectoral policies, and into conservation and rehabilitation. Saskatchewan's action plan will serve as an umbrella for a variety of provincial actions to achieve long-term conservation of biodiversity and the maintenance of essential ecological processes and life support systems.

What is Biodiversity?

Ecoregions of Saskatchewan

The ecological land classification system describes the landscapes of Saskatchewan using physical and biological characteristics, as well as human activities to determine ecologically distinct areas. The broadest level of classification is the ecozone. Within the province, four ecozones correspond roughly to the prairie (Prairie Ecozone), boreal forest (Boreal Plain Ecozone), shield (Boreal Shield Ecozone) and the northern subarctic (Taiga Shield Ecozone) regions.

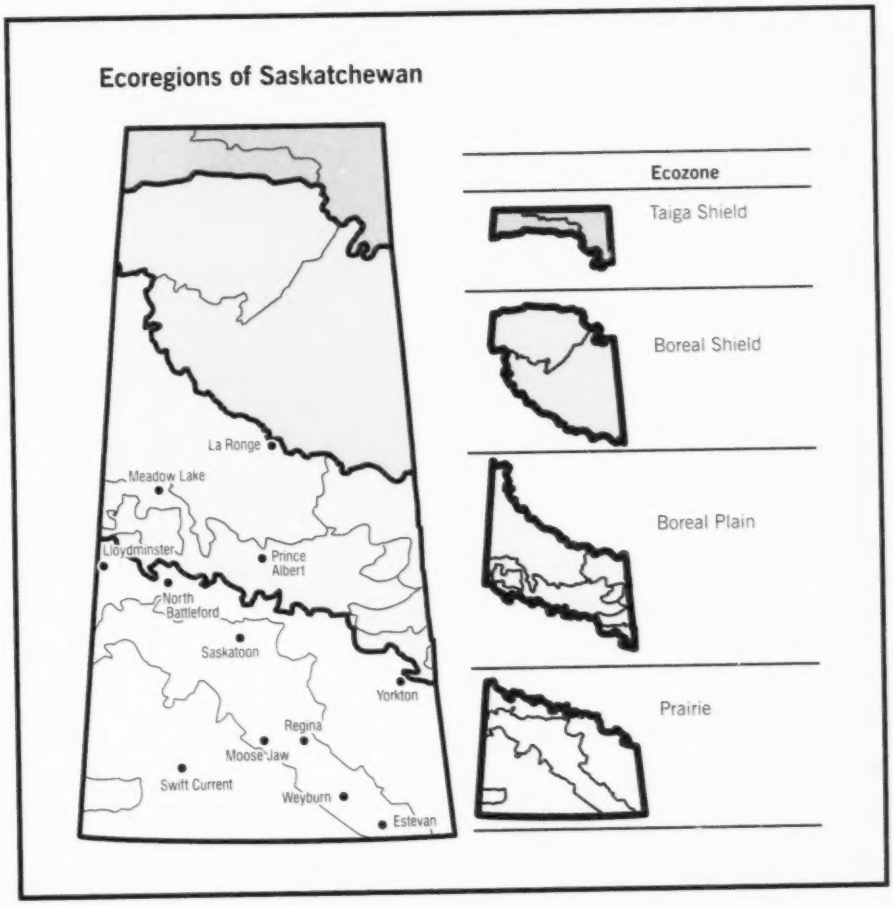
Eleven ecoregions are identified as subsets of these four ecozones. The Mixed Grassland, Moist Mixed Grassland and Aspen Ecoregions are recognized within the Prairie Ecozone. In addition, the unique geology and vegetation of the Cypress Hills Upland helped to separate it as a fourth ecoregion within the Prairie Ecozone. Three ecoregions, the Boreal Transition, Mid-Boreal Upland and the Mid-Boreal Lowland occur within the Boreal Plain Ecozone. The Churchill River Upland and the Athabasca Plain Ecoregions comprise the Boreal Shield Ecozone. The Taiga Shield Ecozone also consists of two ecoregions, namely the Selwyn Lake Upland and the Tazin Lake Upland.

Biodiversity - short for biological diversity - includes all species of plants, animals and microorganisms and the ecosystems and ecological processes of which they are a part. Scientists often speak of three levels of diversity - species, genetic and ecosystem diversity. In effect, these three levels cannot be separated. Each is important, interacting with and influencing the others.

Genetic diversity: the variety of genetic information contained in all of the individual plants, animals and microorganisms that inhabit the earth.

Species diversity: the variety of living organisms on earth.

Ecosystem diversity: the variety of habitats, biotic communities, and ecological processes on earth.



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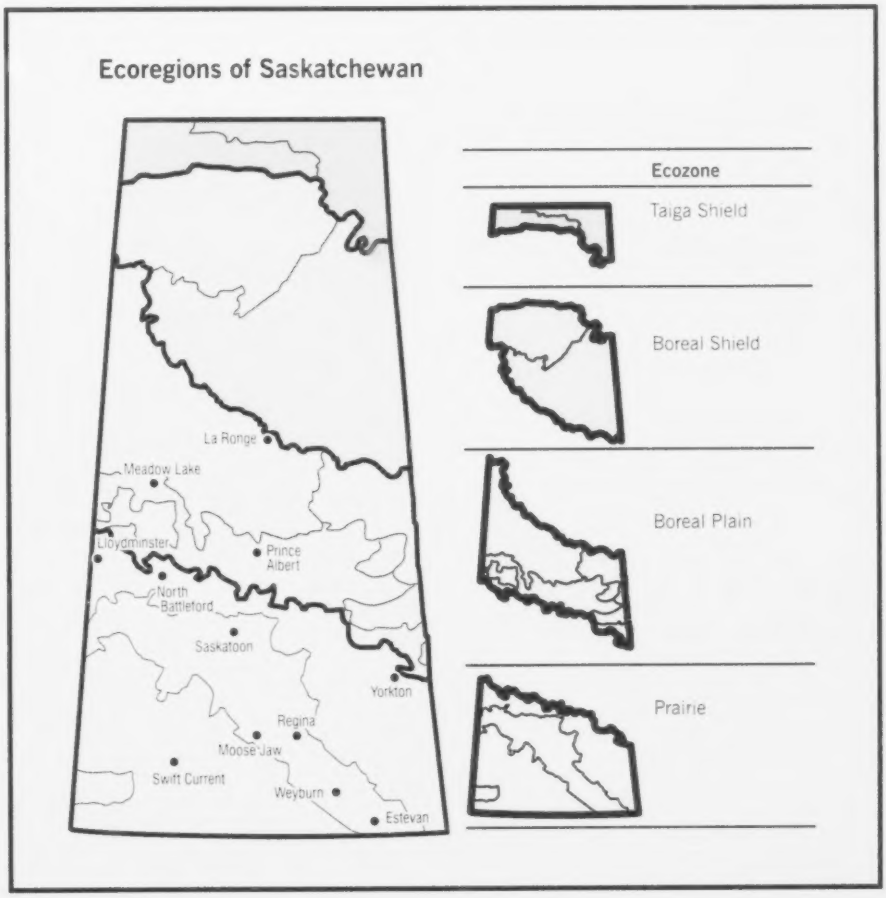

Environmental Pressures

Species Diversity

Aside from the more visible groups, the total species diversity of the province is poorly documented. The known native vertebrate fauna of the province includes 58 fish species, seven amphibian species, 12 reptile species, 358 bird species , and 80 mammal species. There are at least 2,333 native vascular plant species documented as occurring here. To this must be added a similar number of non-vascular plants. The most diverse group is the terrestrial and aquatic invertebrates with an estimated 10,000 native species inhabiting the province. There are also numerous species of viruses, bacteria, protozoa and other microorganisms, for which no meaningful estimates of species numbers are available, although they certainly number in the tens of thousands.

Natural systems are under ongoing pressures which can be attributed to a number of underlying causes. These include the size and distribution of the human population, the level of resource consumption, factors and policies that provide incentives for the depletion of biological diversity, under-valuation of environmental goods and services, unfavorable institutions and laws, under-investment in biological diversity conservation, and inadequate knowledge about the importance and role of biological diversity, the status of biological diversity and the rate at which it is being lost. While these underlying causes are extremely complex they must be confronted at the global scale, as well, proximate or next order causes must be addressed at the local level.

The proximate threats to Saskatchewan's land and aquatic biodiversity can be summarized under five main headings: habitat loss and fragmentation, invasive exotic species, pesticides and pollution, over-harvesting and global warming. Habitat loss and fragmentation are the most serious problems, especially in the southern half of the province where most of the native prairie has been cultivated and the highest density of roads exist. Aquatic systems, such as streams, are also fragmented by structures such as dams, poorly constructed road crossings and other barriers. Resource extraction can exert both short term and long term impact on habitat, although techniques continue to improve to minimize these.

The next most serious problem is invasive exotic species. Hundreds of species have been deliberately or accidentally introduced into the province and some have become serious threats to native species. For example, purple loosestrife can completely displace native vegetation, European carp destroy habitat for other fish and non-native ladybugs may out-compete their native counterparts. Many of these non-native species, as with weeds, are also serious agricultural pests.

The widespread use of many different kinds of pesticides also pose a threat to the province's biodiversity. The use of herbicides and insecticides can kill beneficial native plants and insects. Their improper use also promotes the evolution of resistance in the pests themselves, reducing the efficacy of the pesticides.

The over-harvest of native species, although now regulated, can still be a serious local issue. For example, research has shown that stocks of lake fish dwindle rapidly once a lake has road access. A major challenge is to determine sustainable harvest limits.

Finally, climate change is acting in concert with the other forces to increase the impacts on native species in Saskatchewan. Natural climate variation causes species to expand and contract their ranges. As global warming continues, it is likely to increase this requirement for range movement. However, movement of species in the south is very difficult due to extensive habitat loss and fragmentation. It is vital, therefore, that there be linkages or corridors established across ecosystems to allow the uninhibited movement of these species and their genes.

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Value of Biodiversity

Value:
'Worth, desirability,
utility'

- Concise Oxford Dictionary

What does the average person value in their life? Family, friends, good health, a home, a job? If you were to ask someone this question, you would likely get a list much like this. The word 'biodiversity' might not be mentioned, including words like 'nature' or 'wildlife'. However, if you asked questions like 'is nature a worthwhile thing?' or 'do you support wildlife conservation?', you would almost certainly receive a positive response. So, do people value biodiversity? If they think nature is worthwhile, or that the wise use of wildlife is important, then clearly they do, although they might not appreciate it in those terms. In fact, questions like these have been asked many times in Canada, and the response is a resounding 'yes'. Canadians value their fish and wildlife resources, parks and protected areas and believe that they should be conserved for future generations.

It turns out that this desire to value biological resources is well-placed. Canada's biological diversity is fundamental for human food, water, shelter, health, work, recreation, culture, and environment. This is particularly true in Saskatchewan, where agriculture and other biodiversity-related economic activities, such as forestry, fishing, hunting, and tourism play such a large role in the economy. So, biodiversity has value, but can it be measured in economic terms? Because of the all-pervasive nature of biological resources, this is difficult to do, especially for non-market goods and services. For example, the composition of the air we breathe is maintained by living things. Phytoplankton in the oceans, and plants in forests, grasslands, and wetlands all act to provide us with the perfect mixture of nitrogen, oxygen, and carbon dioxide. What is this 'service' worth? No one can say, but as humans change the composition of the atmosphere through the combustion of fossil fuels, 'costs' are beginning to emerge, such as the dramatic increase in insurance claims resulting from extreme weather events. In summary, while it is difficult to quantify the value of biodiversity, it is not zero, as assumed by most traditional economic models.

The above example serves to illustrate a very important relationship between human economic activity and the natural world. Some people have called this the 'No Free Lunch' principle. It goes something like this. As we utilize a biological resource (soil, forests, fisheries) for the products we want (wheat, lumber, food), we naturally derive economic benefits. People are fed, housed, and employed. This is good, but naturally leads to pressure to increase the level of utilization. However, as we do so, there comes a point when the ecological costs of doing so outweigh the derived economic benefits. This is usually because the biological resource cannot sustain itself at the level demanded by the pace of utilization. As a result, the well-being of people actually falls despite an increase in the level of resource utilization. There have been many examples of this, and the resulting costs, social or otherwise, can be considerable. The dust bowl of the 1930s, the collapse of the east and west coast fisheries, and the flooding in Manitoba are among the best known. The current agricultural crisis is, in part, a biological crisis. For example, the health and productivity of prairie soils have been reduced, due mostly to excessive tillage over past decades.

Can we be more specific about the economic value of biodiversity in Saskatchewan? Certainly we can say that biodiversity has served the province well. Vast areas of highly productive grasslands, some of which have been converted to crop production, make agriculture a cornerstone of the provincial economy. Primary agriculture and related service industries represent about 8 per cent ($1.9 billion) of the provincial GDP and employs approximately 46,200 people. The forest industry currently employs about 9,000 people with 31 Saskatchewan communities dependent on it. Proposed expansion is expected to create 10,000 additional jobs and a $750 million increase in GDP. These benefits, however, have not come without their costs. Saskatchewan prairie soil fertility has declined by up to one-third. Similarly, past forestry practices have resulted in a significant area being inadequately restocked. The key to long-term economic benefits lies not in over-utilizing resources in the short-term, but in maintaining the long-term productivity of the environment. This is central to the concept of sustainable development that has been widely embraced.

Some interesting shifts are occurring in response to this trade-off. For example, approximately 1,000 organic producers currently exist in Saskatchewan and the industry is growing at a rate of 20 percent per year due to increasing demand for organic products across the world, particularly in Europe. Reduced reliance on pesticides will also help to reduce provincial expenditures on human health over the long-term. Other uses of biodiversity include hunting, fishing, and tourism. In 1996, expenditures by Saskatchewan residents on nature-related activities were almost $700 million.

The value of other 'services' provided by biodiversity is more difficult to estimate, but includes such things as clean water, hydrological services, pollination, pest control, pharmaceuticals, and waste management. Wetlands act as natural filters of water and as buffers against severe flooding. Bees and other wild insects pollinate our crops without charge. Replacing them with artificial methods can be very expensive. Birds, spiders and other animals consume large numbers of pests that would otherwise damage our crops. Many of our medicines are derived from wild species, especially plants. A myriad of micro-organisms routinely take our wastes and recycle them into the environment. The list is endless.

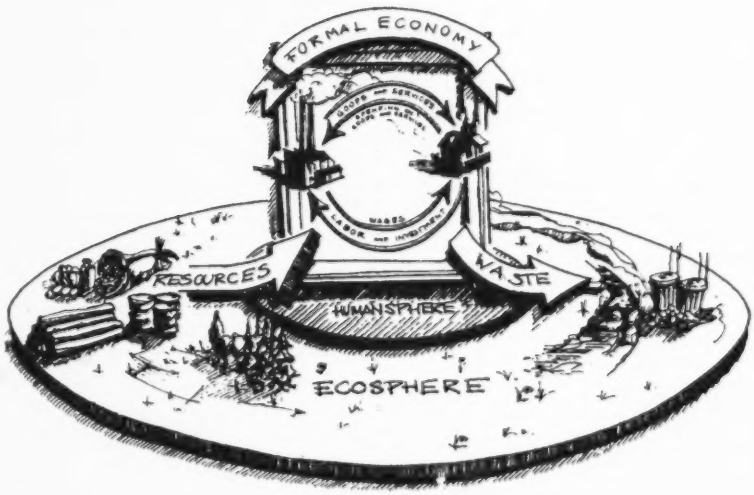
Action to conserve biodiversity, in addition to outlining the value of the resources to the economy and to society, must also address the costs. A number of areas for action suggested in the document are either activities currently underway or will be relatively low cost. Other proposed actions will however represent significant costs to government or to individuals as lost opportunities, lost revenues or increased management costs. In some cases the impact of action is not in cost or benefit, but a change in who benefits from the use or non-use of the land. Against these costs are the benefits of biodiversity conservation. Generally what is good for the environment is also good for the health of the residents of Saskatchewan and for the long-term economy of the province. These benefits are difficult to quantify in dollar terms and in contrast to the direct benefits of the use of biological resources, the conservation of biodiversity benefits society as a whole, making it much more difficult to assess.

In summary, what is known is that biodiversity, fish, wildlife and wild lands and nature in general, have incredible value. Canadians have said so and are demanding that they be conserved for the future. Unfortunately, these values are not always recognized and hence biological resources are damaged. The key to their maintenance lies in adopting a longer-term view to their utilization and for all sectors of society to be responsible to consider the social, economic and environmental consequences of their actions. By not doing so, we run the risk of incurring economic costs that may be much greater than the realized benefits over the short-term.

A Matter of Perspective:

The premise that human society is a subsystem of the ecosphere, that human beings are embedded in nature, is so simple that it is generally overlooked or dismissed as too obvious to be relevant. However, taking this "obvious" insight seriously leads to some profound conclusions. The policy implications of this ecological reality run much deeper than pressing for improved pollution control and better environmental protection, both of which maintain the myth of separation. If humans are a part of nature's fabric, the "environment" is no mere scenic backdrop, but becomes the play itself. The ecosphere is where we live, humanity is dependent on nature not the reverse. Sustainability requires that our emphasis shift from "managing resources' to managing ourselves, that we learn to live as part of nature. Economics at last becomes human ecology.

Wackernagel M., Rees B., Our Ecological Footprint, 1996.



Circular flows are actually sustained by the unidirectional throughput of ecological goods and services from and to the ecosphere (the natural income stream). All the energy and much of the matter that passes through the economy is permanently dissipated in the "the environment" never to be used again.

From a Framework Document to an Action Plan

A discussion document, "Caring for Saskatchewan's Natural Environment: Framework for a Saskatchewan Biodiversity Action Plan," was prepared by the Saskatchewan Biodiversity Interagency Steering Committee to seek input from both the public and private sector. The document proposed a vision, a statement of principles, five goals (based primarily on the Canadian Biodiversity Strategy), and thirty-six objectives. The document was intended to generate discussion on key issues which needed to be addressed.

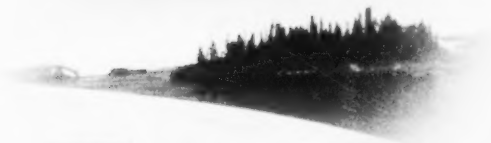
The framework document was distributed to all provincial government departments and agencies, as well as to targeted groups including Aboriginal groups, academic and research groups, adjacent government jurisdictions and federal agencies, agricultural and renewable resource groups, provincial agencies and municipalities, and conservation or environmental non-government organizations.

Comments and recommendations received have been reflected in this proposed action plan. Important changes from the framework document include a change in the number of objective statements. The objective statements have been combined in several areas to highlight the priority to address the key biodiversity conservation issues. Some of these proposed objectives involve significant costs. The final action plan will continue to prioritise actions to ensure that the province is able to fund, over the next five years, actions of the highest priority.

Another change was how climate change has been addressed within the document. A separate objective statement has not been included in the action plan. This is because climate change is, essentially, an all-encompassing environmental pressure. The mechanisms proposed in the plan to allow for the reduction of other environmental pressures similarly address climate change as an environmental pressure. Sustainable use, education, environmental monitoring, and inter-jurisdictional cooperation all support a reduction in contributors to global climate change, just as they address the loss of biodiversity.

Finally, genetically modified organisms (GMO) are also not separately addressed in the document. Environment Canada has the leading role in developing a federal framework for regulating biotechnology products. The Saskatchewan government will continue to support the federal government in the development of a framework for assessing potential risks and benefits to biodiversity associated with GMOs, including criteria for assessing the impacts of GMOs on ecosystems.

An ecological or ecosystems based approach is at the heart of the Biodiversity Action Plan and strives to increase our ability to link initiatives and collectively address issues. By building on and linking our efforts we believe that we can work more efficiently to achieve greater benefits.



The Proposed Action Plan

Vision

Residents of the province must act with wisdom and prudence today to ensure we leave future generations a nurturing and dynamic environment rich in its biodiversity.

Saskatchewan residents are privileged to live in a province rich in its diversity of peoples, landscapes and watersheds - ranging from prairie grassland to boreal forests and sparsely treed shield, from sand dunes to wetlands, to abundant rivers and bogs - all supporting life of many descriptions. With this privilege comes the responsibility to care for this inheritance on behalf of present and future generations.

Principles for an Action Plan

Stewardship of the environment is the responsibility of all Saskatchewan residents. The following principles support biodiversity conservation and the sustainable use of biological resources.

Shared Responsibility: We depend on biodiversity for our physical, economic and cultural needs and have a responsibility to contribute to biodiversity conservation and to use biological resources in a sustainable manner. Residents of Saskatchewan, including private landowners and land managers, all levels of governments, Aboriginal peoples, interest groups, industry and other agencies, must work together to identify problems and opportunities and find common solutions.

Effective Public Participation: The province will encourage understanding and appreciation of the value of biodiversity and ecological processes and will also encourage all Saskatchewan residents to participate in stewardship of biological resources.

Ecosystem Based Management: Healthy, energetic, natural ecosystems processes in their natural surroundings are prerequisites to conservation of biodiversity and the sustainable use of biological resources. An ecological approach to resource management is central to conserving biodiversity and ecosystem health while supporting society's needs.

Balanced Values: Use of biological resources must acknowledge and balance ecological, economic, social and cultural values.

Knowledge-based Decisions: The conservation of biodiversity and the sustainable use of biological resources should be carried out using the best knowledge, innovations and practices available including science based, Aboriginal traditional ecological knowledge and local knowledge.

Leadership: The Saskatchewan government will provide leadership in biodiversity conservation. Government, in partnership with other agencies and organizations, will work effectively and efficiently to integrate and harmonize programs and policies to ensure long term integrated management of the environmental, economic, social and cultural benefits of biological resources.

Goal One

Conservation and Sustainable Use

To conserve biodiversity and use biological resources in a sustainable manner

Conservation and sustainable use of Saskatchewan's biodiversity resources are essential if we are to continue to reap the economic and ecological benefits they provide. The people of this province have always used biological resources for food, clothing, medicine, fuel and shelter as well as for spiritual, recreation and tourism purposes. Residents have claimed the vast expanses of prairie and forest as their home and have thrived thanks to the wealth of natural resources. In order to maintain these resources, they must be managed in a sustainable fashion using guiding principles that are consistent with an ecosystem approach. This goal can only be achieved in partnership with all stakeholders and by promoting stewardship of resources.

Within this ecosystem approach, certain issues require special consideration. Saskatchewan is home to a growing number of species and ecosystems at risk. In addition, invasive exotic species are a major threat to our biodiversity resources. The province has also established a Representative Areas Network that provincially includes park land, ecological reserves and wildlife lands. The challenge is to ensure that their terrestrial and aquatic ecosystems and associated biodiversity persist into the future and serve as benchmarks against which we can monitor the effectiveness of environmental stewardship across the broader landscape. Finally, maintaining viable populations of all native animals and plants must be the central theme to ecosystem based management.

Objective 1

Sustainable Use: Manage wild species within sustainable harvest levels.

Proposed Actions:

1.1 Sustainably manage all wild species within an ecosystem context.
- Complete risk analysis for the harvest of wild plants including management recommendations: 2004; Implementation of recommendations on a priority basis: 2008
- Manage game species to incorporate ecosystem impacts of harvesting activities into decision making: Ongoing

1.2 Work with the forest industry to adopt ecosystem based forest management planning.
- Review Forest Management Plans on a 10 year schedule to ensure they reflect ecosystem based forest management: Ongoing
- Ensure that ecosystem based forest management plans are adopted and implemented for all new major developments: Ongoing

1.3 Use natural disturbance patterns in planning forest and grassland management activities to maintain ecosystem processes and functions.
- Establish landscape and site level management objectives for forest ecosystems: 2005
- Modify objectives based on data collected through the forest ecosystem impacts monitoring program: Ongoing

Goal One
Continued

Prairie Conservation

Saskatchewan's Prairie Conservation Action Plan (PCAP) was launched in 1998. The Plan is action oriented, consisting of 85 action items which relate to its five goals:

1) To Sustain a Healthy Native Prairie Resource
2) To Conserve the Remaining Prairie Resource
3) To Maintain Saskatchewan's Native Prairie Biological Diversity
4) To Promote the Sustainable Use of Native Prairie to Enhance Quality of Life
5) To Promote Education and Develop Communication Programs

The PCAP Partnership is chaired by the Saskatchewan Stock Growers Association and has representation from over 20 groups representing industry, federal and provincial government agencies, non government organizations, and Saskatchewan's two universities. Progress is tracked and evaluated annually through the publication of "Partner Updates". The current PCAP will expire in March 2003 and Partners are planning to develop a new Plan to ensure continuity on prairie conservation and management goals.

Objective 2

Protected Areas: Complete a system of protected areas that are representative of the province's terrestrial and aquatic ecosystems and ensure that they are managed to conserve biodiversity in the context of their designation mandate.

Proposed Actions:

2.1 Complete the Representative Areas Network (RAN) to ensure adequate representation of the province's 11 Ecoregions and to provide benchmark monitoring areas.

- Finalize the boundaries and designation of RAN sites within the Pasquia Porcupine Land Use Planning Area: 2004
- Establish a program to monitor integrity of the RAN: 2005
- Identify policy and principles that apply to the management of all areas recognized within the RAN program: 2005
- Finalize the boundaries and designation for identified sites in the Boreal Plain Ecozone, including Mid-boreal Upland Ecoregion: 2006
- Identify candidate sites within the Prairie Ecozone: 2008

2.2 Develop and implement policies, guidelines and management plans for all protected areas.

- Establish human activity management plans for all ecological reserves: 2004
- Identify protected areas most at risk, prepare and implement ecological management plans on a priority basis, based on ecological assessments at a rate of five per year: Ongoing
- Pursuant to the recommendations arising from the Conservation Action Plan for Saskatchewan's Park Lands, implement conservation action for all Park Land that supports ecological (and cultural) integrity and demonstrates ecosystem based management to the public: Ongoing

Objective 3

Partnerships for Stewardship: Continue to work with non-government organizations and agencies on the stewardship of landscapes and aquatic ecosystems across the province.

Proposed Actions:

3.1 Support development and implementation of a renewed mandate for the Prairie Conservation Action Plan (PCAP), recognizing that PCAP addresses biodiversity concerns in the Prairie Ecozone.

- Participate in the development of the 2003-2008 Five Year PCAP and implementation: 2003

3.2 Work with Aboriginal leaders to develop and implement pilot projects and programs that will enhance the integration of First Nation and Metis people into the resource management decision-making process.

- Develop and implement Cumberland House Moose Management pilot program with First Nations in Saskatchewan, act on recommendations on a provincial scale: 2004
- Implement and evaluate North West pilot with Metis people of Saskatchewan: 2004

3.3 Participate in national programs and work with neighboring jurisdictions on stewardship initiatives.

- Participate in the development and implementation of an expanded Canada-wide Stewardship Program that will include urban, rural, protected areas, and resource industry initiatives: Ongoing

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Goal One
Continued

Objective 4

Species and Ecosystems at Risk: Protect species at risk (SAR) and prevent new species and ecosystems from becoming threatened through an ecosystem-based approach that is both responsive to the needs of provincially-listed species, and that is integrated with the proposed federal *Species at Risk Act.*

Proposed Actions:

4.1 Ensure adequate protection for SAR under *The Wildlife Act* and protect ecosystems inhabited by SAR.
- Prioritize species suspected of being at risk: 2003
- Review high priority species and list those deemed to be at risk under The Wildlife Act: 2005
- Review protective status of ecosystems on which SAR depend: 2005
- In cooperation with land owners and managers, implement relevant protection: Ongoing

4.2 Ensure that recovery plans are developed to consider the ecosystems on which the species depends. Act to protect habitat of species and ecosystems at risk.
- Complete recovery plans for all SAR within an ecosystem context: Ongoing

4.3 Enhance scientific knowledge about the distribution and abundance of species at risk, and their ecological relationships.
- Develop and test spatial models that predict the occurrence of SAR and/or threatened plant communities: 2004
- Conduct surveys on lands suspected to contain SAR and/or threatened plant communities and areas with little data: 2005

4.4 Enhance the accessibility of information about species at risk.
- Develop materials that assist with the rapid field identification of SAR, particularly plants: 2004
- Develop materials that describe a standard approach to SAR surveys, especially plants: 2004
- Enhance web-based access to SAR information: Ongoing

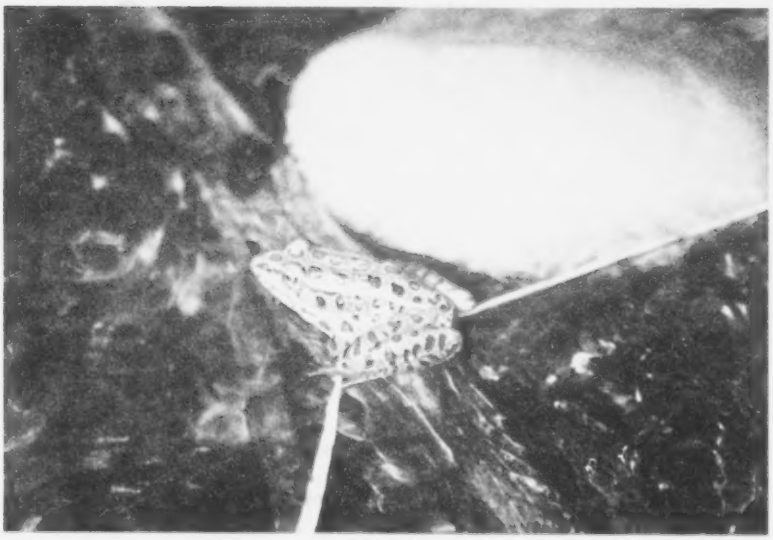

Photo courtesy J. Pepper

Goal One
Continued

Early Prevention

Early prevention will be the key to not only preserving the ecological integrity of Saskatchewan's remaining native habitat, but also to saving millions of dollars to eradicate problem species. The relationship of cost to invasion phase illustrated in Figure 1. can best be explained with an example. A study examining the costs of zebra mussel (*Dreissena polymorpha*) control in 400 facilities in the U.S. and Canada found control costs in 1989 were approximately $234,140 while in 1995, this amount increased to $17,751,000. This study included only a small fraction of the facilities affected. Total projected costs of zebra mussel control are estimated at $300-400 million (Pimentel 2000).

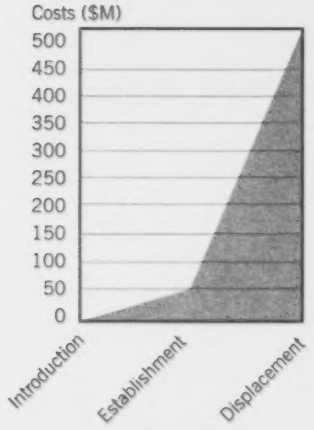

Figure 1. The relationship of management costs in million dollars to invasion phase of exotic species. The least costly phase is prevention. Costs increase exponentially once an invading species is established and become most costly once the species begins displacing native species or disrupting native habitats. (Adapted from CAST 2000)

Objective 5
Invasive Exotic Species: Address the growing threat of invasive exotic species.

Proposed Actions:

5.1 Develop a strategy and carry out research and monitoring to evaluate the distribution and dispersal of invasive exotic species within the province.
- Biennial reporting on the status of invasive exotic species: 2004

5.2 Identify and introduce measures to prevent the introduction of invasive exotic species including pathogens and parasites; including known pathways of introduction and natural dispersal into the province.
- Development of import protocol and implementation for all wildlife imports: 2004
- Development of a risk assessment plan with predictive capacity for new species introduction including for agricultural and horticultural applications: 2005

5.3 Identify and introduce measures to control populations of invasive exotic species existing in province.
- Identification of priority species with cost effective and practical eradication or reduction programs outlined: 2004

5.4 Establish a province-wide committee to develop and implement provincial invasive exotic species strategies: 2002

5.5 Participate in national programs and work with neighboring jurisdictions to manage invasive exotic species within the province.
- Participate in the National Invasive Exotic Species Working Group to develop and implement a strategy to address issues of national concern: Ongoing

Objective 6
Ecosystem Management Principles for Crown Lands: Use an ecosystem based approach to Crown land and resources management

Proposed Actions:

6.1 Develop guiding principles for Crown lands and resources which support an ecosystem based approach to management.
- Completion and adoption of a set of guiding principles for all Crown land and resources management: 2004

Goal One
Continued

Objective 4

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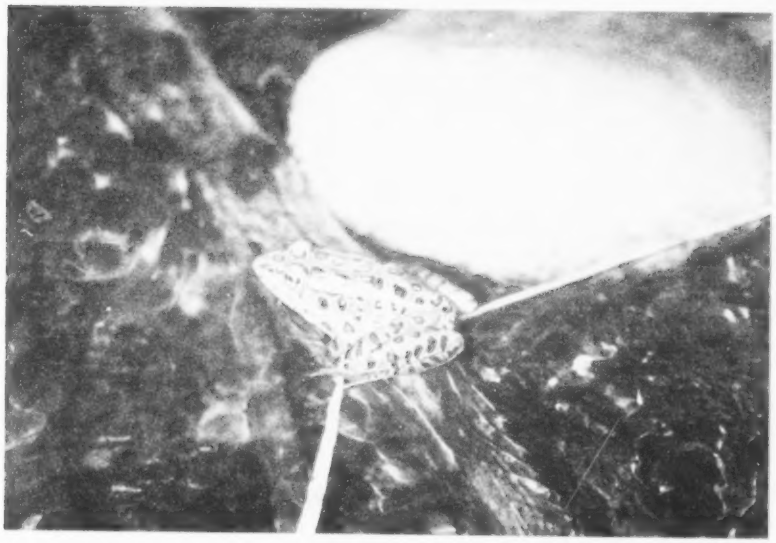

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Goal One
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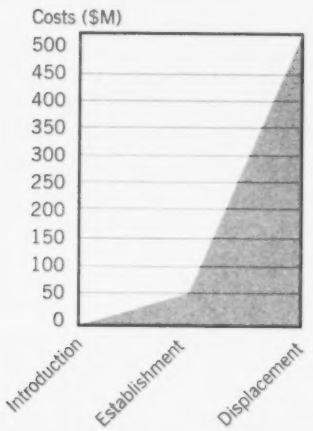

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Goal Two
Ecological Management

To improve our understanding of ecosystems and increase our resource management capacity

Sound decision-making relies on ready access to factual information in support of policy and program development. Readily accessible knowledge of the province's biological resources is critical for economic development, social planning and environmental protection. To be useful, ecological information needs to be communicated broadly - among professionals, the general public and decision makers. Although considerable information currently exists, it needs to be compiled within information systems that will make it comprehensible, allow for updating and accessible to all concerned.

The cumulative effects of many economic activities cannot be readily assessed in compliance with provincial directives without costly delays. The absence of readily available biodiversity information is costing industry tens of millions of dollars a year on a national basis in lost time and is resulting in loss of biodiversity due to lack of knowledge in the face of developing pressures.

Objective 7
Planning and Development: Develop an ecosystem based management approach to facilitate the integration of conservation and land use management.

Proposed Actions:

7.1 Explore how environmental assessment (EA) may be used to integrate biodiversity and development considerations at an early planning stage.
- Support a feasibility study that would explore how to incorporate biodiversity in a more strategic application of EA within landscapes or a regional context. Through the study, biodiversity issues relevant to a strategic environmental assessment of this type would be identified including, for example, a consideration of information needs, integration methods, land-use policies, funding mechanisms and consultative criteria: 2008

7.2 Develop multi-stakeholder integrated land and resource use plans to guide existing and potential uses of provincial forest and parklands.
- Completion of integrated forest land use plans for the commercial forest: Ongoing
- Complete 5 year updates for existing integrated forest land use plans: Ongoing
- Continue participation in the Prince Albert Model Forest.

Objective 8
Ecosystem Information and Management: Enhance information and information management systems to support ecosystems based management by all sectors.

Proposed Actions:

8.1 Promote sharing of information by coordinating biodiversity knowledge networking activities and access to information.
- Build and strengthen the Conservation Data Centre capacity for enhanced species and ecosystem information and access for the public and private sector: 2004

8.2 Develop and implement a standardized protocol for ecological assessments.
- Develop and implement a standard protocol for EIA that conforms to SE's data model: 2004

8.3 Support ecosystem data collection and analysis.
- Encourage ecological inventories including guidelines and standards and biological surveys: 2005
- Model possible ecosystem changes due to climate change: 2004

8.4 Establish provincial biodiversity classification systems.
- Complete an aquatic classification system: 2004
- Complete a forest ecosystem classification system: 2004
- Complete a community classification system for the grassland and parkland vegetative communities: 2005

The Saskatchewan Conservation Data Centre (SKCDC)

The SKCDC serves the Saskatchewan public by gathering, interpreting and distributing standardized information on the ecological status of provincial wild species and communities. In the past five years the SKCDC has seen, on average, a 75% increase per year in the number of biodiversity information data requests received and has instituted an Internet based Query system to help cope with the increasing demand.

Information Demand		
1997	285	
1998	324	13%+
1999	931	200%+
2000	1411	50%+

Goal Two
Continued

Objective 9
Ecological Monitoring: Establish a long-term spatially appropriate monitoring program to indicate ecosystem health in the province.

Proposed Actions:

9.1 Establish an ecological monitoring approach to measure ecosystem health.
- Develop a suite of ecosystem health indicators that is presented in an integrated format to report biannually in the Saskatchewan State of the Environment Report: 2004
- Establish a provincial monitoring body to integrate monitoring requirements and activities: 2003

9.2 Establish a forest monitoring program to measure forest ecosystem health jointly with the province, forest industry and scientific community.
- Development of indicators of forest ecosystem health: 2003
- Implementation of monitoring program: Ongoing

9.3 Improve monitoring of water, air and soil to detect significant changes and long-term trends.
- Monitor water quality of major surface waterbodies and watersheds at least four times per year: Ongoing
- Monitor air quality in major cities: Ongoing
- Detect contaminated sites and monitor changes and clean up: Ongoing
- Monitor change in agricultural soil health: Ongoing

Objective 10
Environmental Accountability: Include biological diversity considerations in government policy, planning, and encourage the full spectrum of environmental costs be integrated into decision making.

Proposed Actions:

10.1 In a two-phase process, implement environmental accounting into all Crown agencies and government departments.
- Phase one would include the addition of an environmental component into the strategic planning of all Crown corporations and departments: 2004
- Phase two involves the development of an environmental management system appropriate to government departments with a pilot of the system in three departments: 2008

Environmental Management Systems

Environmental management systems (EMS) are tools that help organizations understand the relationship between their activities and the environment. The importance of environmental management systems are that they provide a benchmark against which to measure performance. Components of an EMS include setting environmental policy for an organization, defining the environmental goals, establishing a program to meet those goals, and finally establishing an assessment and reporting process.

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Goal Three

Education and Awareness

To promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner

If national and provincial efforts to conserve biodiversity are to succeed, individuals and communities must understand and appreciate the value of biodiversity and the causes of its decline. Goal Three recognizes that education can be an effective means of changing public perspectives on biodiversity. There is a lack of information provided to society which would assist individuals in their understanding of the ecosystem and the social and economic implications of the loss of biodiversity. In addition, there is a need to increase environmental literacy among all sectors of society including government, academics, non-government agencies and industry.

Objective 11

Education and Awareness: Enhance biodiversity awareness through informal and formal education.

Proposed Actions:

11.1 Develop and implement a strategy to enhance biodiversity messages in K to 12 curriculum including programs which provide training and continuing education for teachers and enhanced programs which provide hands on contact with the environment.

- Ensure biodiversity concepts are incorporated within any curriculum revisions and messages: Ongoing
- Support educator's training and continuing education programs for environmental messages: Ongoing

11.2 Examine opportunities to incorporate environmental stewardship messages into post-secondary training and prepare a plan of action to develop and implement curriculum changes.

- Develop and implement a strategy to incorporate biodiversity messages into post-secondary training to increase environmental literacy: 2006

11.3 Develop and implement a strategy to increase the understanding by the general public of biodiversity issues and the need for individual participation in biodiversity stewardship efforts, using existing mechanisms where possible.

- Include training opportunities for environmental educators and heritage interpreters for biodiversity themes and messages: Ongoing
- Integrate themes and messages about biodiversity conservation and the sustainable use of biodiversity into existing interpretive programs within provincial parks: Ongoing
- Strengthen coordination among educational institutions, government departments, museums, zoos, and conservation organizations through the development of a web based information directory on provincial biodiversity resources: 2004

Goal Three
Continued

Objective 12
Knowledge Sharing and Capacity Development: Facilitate training, information and technology transfer with land managers in all sectors including government, industry and landowners.

Proposed Actions:

12.1 Develop and implement training opportunities for appropriate government staff to increase their understanding of Saskatchewan ecosystems and biodiversity conservation.

- Establish a public service training course to promote awareness of biodiversity issues, conservation and sustainable use requirements and improvements in resource management practices: 2005

12.2 Develop and deliver training programs in ecological management, sustainable use methods and best practices to industry, landowners and other land managers.

- Build on existing agricultural programs for information exchange to deliver messages on management practices that favour the conservation of biodiversity: Ongoing
- Enhance existing forestry technology transfer programs for government staff, forest industry and other land managers: Ongoing

Goal Four
Incentives and Legislation

To develop a suite of incentives and legislation supporting the conservation of biodiversity and sustainable use of biological resources

One of the challenges facing humanity today is the creation of a shared vision of a sustainable and desirable society that can provide permanent prosperity within the constraints of the environment, and in a way that is fair and equitable to all of humanity, to other species and to future generations. Often environmental conservation has been seen as a cost to society rather than an investment in the future and the benefits of biodiversity conservation are not understood. Goal four reflects the need for government decision making - policy and legislation, to reflect the value of biodiversity of "natural capital". As well goal four addresses how economic instruments, or incentives can be used to influence conservation. The focus for incentives is on the agriculture community.

It is difficult to reconcile the conflicts between commodity production and ecological protection within agricultural areas due to increasing demands by society for both. Even as commodity prices decline, the agricultural industry strives to increase the intensity of agricultural production. At the same time, it is becoming evident that setting aside isolated islands of natural ecosystems, as protected areas, is insufficient to maintain the ecological function of the area. As a result, initiatives should be undertaken to maintain and improve ecological condition across the total landscape.

Within Saskatchewan, agricultural production can both enhance and degrade biodiversity. However, agricultural producers often have limited market incentives to maintain or adopt beneficial practices, or to minimize environmental damage. For example, shifting land from commodity production to wildlife habitat means giving up the income that could have been earned from the commodities the land would have produced. In some cases, wildlife habitat could be provided in combination with commodity production, but even acquiring information about conservation techniques can represent a cost to farmers. The damage associated with environmentally degrading production techniques often occur at some distance from the farms that create them and may be realized only after a period of months or years. In addition, the benefits that are attributable to conservation activities, such as enhanced wildlife hunting, fishing, wildlife viewing and other biodiversity-related benefits, are not exclusively captured by the landowner, but are shared with all of society. Programs designed to enhance and protect biodiversity on agricultural lands need to address the key economic issues underlying the tradeoffs between production and conservation if they are to secure the participation of the farm sector.

Goal Three

Education and Awareness

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If national and provincial efforts to conserve biodiversity are to succeed, individuals and communities must understand and appreciate the value of biodiversity and the causes of its decline. Goal Three recognizes that education can be an effective means of changing public perspectives on biodiversity. There is a lack of information provided to society which would assist individuals in their understanding of the ecosystem and the social and economic implications of the loss of biodiversity. In addition, there is a need to increase environmental literacy among all sectors of society including government, academics, non-government agencies and industry.

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Goal Three
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Goal Four
Continued

A number of important issues should be considered when developing policy aimed at conserving Saskatchewan's biodiversity. Since environmental issues are becoming increasingly important to society, a redirection of agricultural policy towards environmental objectives is occurring in many countries. There is a growing expectation by society that the agricultural landscape should provide environmental goods and services, including wildlife habitat and biodiversity and water and air quality along with food. Global trade agreements are limiting the role of policies that support commodity prices and subsidize exports, while allowing "green box" subsidies that target specific environmental or conservation objectives. Therefore, these "green box" subsidies may become increasingly important vehicles for governments to provide farm income support.

In order to be effective, agriculture policy aimed at conserving biodiversity must be carefully targeted using specific biophysical and economic land characteristics. The Organization for Economic Cooperation and Development (OECD) identified five general considerations that should be incorporated into any reform of agricultural policy:

Transparent: having easily identifiable policy objectives, costs, benefits and beneficiaries.

Targeted: to specific outcomes.

Tailored: providing transfers no greater than necessary to achieve clearly identified outcomes.

Flexible: reflecting the diversity of agricultural situations, able to respond to changing objectives and applicable to the time period needed for the specific outcome achieved.

Equitable: taking into account the effects of the distribution of support between sectors, farmers and regions.

The following objectives on the next page highlight a suite of policy instruments that could be implemented to attain Goal 4.

Goal Four
Continued

Objective 13
Economic Instruments: Develop a suite of economic instruments to support biodiversity conservation and the sustainable use of biological resources.

Proposed Actions:

13.1 Develop a proposal to establish a set of economic incentives specifically aimed at the conservation of biodiversity and ecological function. Specific instruments that should be considered are:

a) incentives for conversion of marginal cultivated lands to perennial vegetative cover (grasses, legumes, trees, shrubs) to enhance or protect important upland and riparian habitat areas;
b) property tax adjustments on private lands where specific environmentally sustainable land-use practices are adopted to conserve native grasslands, wetlands and riparian zones and ecologically beneficial or benign cropping and grazing management;
c) income tax credits in return for donations of conservation easements on private land; and
d) incentives to offset transition costs for producers adopting ecologically beneficial or benign management (e.g. organic agriculture, reduced tillage, improved nutrient management, enhanced grazing systems): 2008

13.2 Establish a framework and technical and/or financial assistance for agricultural producers to improve environmental risk assessment and to adopt whole-farm environmental risk management systems. Environmental planning on an individual farm or watershed basis will raise producer awareness about the links between management practices and ecological function and can be a component of the following initiatives:

a) providing access to the economic incentives discussed in action 13.1;
b) targeting educational and technical assistance concerning biodiversity conservation and ecologically beneficial practices; and
c) developing a system of ecological/environmental labeling or certification for the "Canada Branding" of agricultural commodities. Labeling can provide a market incentive for ecologically beneficial management: 2008

Objective 14
Policy and Legislation Review: Review policy and legislation with respect to biodiversity and sustainable use of biological resources in light of threats to biodiversity including climate change.

Proposed Actions:.

14.1 SE and respective departments will:

- Prioritize and initiate a review of major corporate policy and legislation: Ongoing
- Ensure that environmental concerns are considered in the development of new government policy and legislation: Ongoing

Goal Four
Continued

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Goal Five

Inter-jurisdictional Cooperation

To cooperate with other jurisdictions (international, federal, provincial, municipal and First Nations) having policy responsibility and or program interests to conserve biodiversity and use biological resources in a sustainable manner

Objective 15

Shared Responsibility: Support opportunities to work with other jurisdictions to contribute to biodiversity conservation and use biological resources in a sustainable manner.

Proposed Actions:

15.1 To identify opportunities and mechanisms for the provincial government to encourage and support rural and urban municipalities and First Nations to enhance biodiversity conservation locally, including:

a) improving strategic planning and infrastructure coordination;
b) decrease environmental impacts from municipal activities including reduction of pesticide use, and encourage native species for landscaping, etc.; And
c) continue to expand programs for recycling within communities and industry: Ongoing

15.2 Continue to participate in national programs and work with adjacent jurisdictions to support provincial efforts to conserve biodiversity and use biological resources in a sustainable manner including:

- Contribute to the Federal/Provincial/Territorial Biodiversity Working Group initiatives including Invasive Species, Engaging Canadians, Science and Research and Status and Trends Reporting: Ongoing
- Participate in North American Bird Conservation Initiatives including; North American Waterfowl Management Plan, Partners in Flight, Canadian Shorebird Conservation Plan, North American Colonial Waterbird Conservation Plan: Ongoing
- Review and provide Saskatchewan's position to national initiatives to manage genetically modified organisms through the Federal/Provincial Territorial Working Group on Biotechnology and the Biosafety Protocol Advisory Group: Ongoing
- Continue as a partner of Interprovincial Parks (Cypress Hills Interprovincial Park)
- Participate in the implementation of the National Forest Strategy on Sustainable Forests: Ongoing
- Participate in the Western Working Group on Environmentally Sustainable Agriculture: Ongoing
- Participate in biodiversity conservation initiatives under the National Agriculture Policy Framework: Ongoing

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Appendix 1 : Glossary of Terms

Aboriginal peoples - includes the Indian (First Nations), Inuit and Metis peoples of Canada, as per section 35(2) of The Canadian Constitution Act, 1982

Aboriginal Traditional Ecological Knowledge - refers to the knowledge that Aboriginal peoples have accumulated over countless generations of intimate contact with all aspects of local ecosystems including plants, animals and other natural phenomena

Adaptive Management - an approach to making management decisions about complex and unpredictable systems, including ecosystems, which emphasizes conscious experimentation and continuous learning from the experience

Aquatic - pertaining to or living near water

Biodiversity (Biological Diversity) - includes all species of plants, animals and microorganisms and the ecosystems and ecological processes of which they are parts

Carbon Sequestrian - carbon removed from the atmosphere and fixed in a living or dead organic material

Ecologically Sustainable Use - human use that ensures the capacity for ecosystems to renew themselves, ensuring continued availability for future generations

Ecosystem - an interdependent system consisting of all the living organisms in a given area, all the physical and chemical factors of their environment and the programs which link them

Ecosystem Integrity - a condition where the function and structure (including genetic, species and ecosystem diversity) of an ecosystem are unimpaired by human-induced stresses

Local Knowledge - refers to the historical and practical knowledge accumulated by those who live close to the land and related material resources, such as farmers and ranchers

Natural Capital - natural stocks that yield the flows of natural resources and services without which there can be no economic production (may be marketed or non-marketed)

Stewardship - the individual and corporate responsibility of one generation to maintain the natural inheritance that it has received, both for its benefit and for the benefit of future generations

Terrestrial - pertaining to or living on the land

Watershed - a discrete geographic area within which all water would drain to a single outlet

Wetlands - an area of low-lying land, submerged or inundated periodically by fresh or saline water

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QUESTIONNAIRE

NAME

ORGANIZATION REPRESENTED

DATE

MAILING ADDRESS

EMAIL

FAX/PHONE

Do you agree/disagree with the proposed **Vision Statement** on Page 11?

Disagree Agree

Comments:

Do you agree/disagree with the proposed **Principle Statements** on Page 11?

Disagree Agree

Comments:

Goal One: Conservation and Sustainable Use
Do you agree/disagree with Goal One on Page 12?

Disagree Agree

Comments:

Objective 1: Sustainable Use
Do you agree/disagree with the proposed objectives and actions?

Disagree Agree

Comments:

Objective 2: Protective Areas
Do you agree/disagree with the proposed objectives and actions?

Disagree Agree

Comments:

Objective 3: Partnerships for Stewardship
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Objective 4: Species and Ecosystems at Risk
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Objective 5: Invasive Exotic Species
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Objective 6: Ecosystem Based Management
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

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_____

Goal Two: Ecological Management
Do you agree/disagree with Goal Two on Page 16?

☐ Disagree ☐ Agree

Comments:

_____

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_____

Objective 7: Ecosystem Management Planning
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

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_____

Objective 8: Information Collection and Management
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

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_____

Objective 9: Ecological Monitoring
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Objective 10: Environmental Accountability
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Goal Three: Education and Awareness
Do you agree/disagree with Goal Three on Page 18?

☐ Disagree ☐ Agree

Comments:

_____

_____

_____

Objective 11: Education and Awareness
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

Objective 12: Knowledge Sharing and Capacity Development
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

Goal Four: Incentives and Legislation
Do you agree/disagree with Goal Four on Page 19?

☐ Disagree ☐ Agree

Comments:

Objective 13: Economic Incentives
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

Objective 14: Policy and Legislation
Do you agree/disagree with the proposed objectives and actions?

☐ Disagree ☐ Agree

Comments:

Recycled
Paper

1M/02